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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,711	01/15/2004	Axel K. Kloth	022150-1.00US	6544

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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
STREGE, JOHN B	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
01/31/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/758,711	KLOTH, AXEL K.	
	Examiner	Art Unit	
	John B. Strege	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

The amendment received 11/01/07 has been entered in full.

Response to Arguments

Applicant's arguments filed 11/01/07 have been fully considered but they are not persuasive. Specifically the Applicant recites that none of the art of record discloses computational structures or processing on a real-time basis to obtain a dynamic feature set for object recognition. The Examiner respectfully disagrees. Real time is a subjective term which is interpreted by the examiner as a process being done before a deadline to prevent bottlenecks. Specifically in the abstract of Chin, the last sentence states that the peak performance of the system is 40 billion operations per second, this is interpreted by the Examiner as real time. Furthermore as seen in figure 6 a dynamic feature set is output from the second processing lay which is employed in the pattern recognition of the third layer.

The Applicant then continues by stating, "even though asserted otherwise, the second layer does not operate properly if implemented as an MPP SIMD..." (see last paragraph of page 5). The Examiner is not sure what the relevance of this statement is since it is not reflected in the claim language.

The Applicant further states that Jivinall simply does not emply symmetric multi-processing. The Examiner respectfully disagrees. Juvinall discloses that the data-dependent processor comprises a plurality of closely coupled Von Neuman processors, thus all of the processors are the same and thus meet the limitation (col. 3 lines 48-62).

Thus the rejection has been maintained.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Chin et al. *A massively parallel processing system based on a hyper-crossbar network* (cited in the IDS).

Figure 6 on page 465 of Chin discloses a pipeline configuration for image processing with a first layer that does noise reduction in real time (for example filtering is object independent, the system can reach a peak performance of 40 billion operations per second), a second layer that does cluster extraction in real time to obtain a dynamic feature set for use in object recognition (object dependent) and a third layer that performs pattern recognition in real time employing said dynamic feature set against an object to be recognized.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-9, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juvinall et al. USPN 5,214,713 (cited in the IDS) and further in view of Chin et al. *A massively parallel processing system based on a hyper-crossbar network.*

Juvinall discloses a machine vision system comprising a camera 48 for obtaining an image that comprises a plurarlity of pixels (figure3) a systolic array processor (66 figure 3) that includes a plurality of one-bit data processors for processing in parallel (corresponding to the first processing layer), a data-dependent processor 72 separate from the systolic array to perform data-dependent processing (corresponding to the second processing layer), and a master computer 74 connected to the camera, systolic array, and data dependent processing (at least col. 2 line 45 - col. 3 line 2). Juvinall does not explicitly disclose a third processing layer to perform object recognition, however as stated there is a master computer which can perform other functions.

Chin discloses that due to the computation demands of image processing it is necessary to develop a system with over one thousand processors to achieve the required performance (first paragraph of the introduction, page 463). A system application that Chin discloses using the massively parallel processing system is for image processing as seen in figure 6 in which a noise reduction layer, a cluster extraction layer, and a pattern recognition layer are disclosed. Chin further discloses that the system can be configured as an array -type multii-processor system to process pixel computation for image processing applications (first paragraph, image

processing section, page 465). The system works in relat time (40 billion operations per second, last sentence of the abstract).

Juvinall and Chin are analogous art because they are from the same field of endeavor of parallel processing systems using systolic arrays processors.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine Juvinall and Chin to have a third processing layer that carries out pattern recognition. The motivation for doing so would be to develop a system that performs recognition using the power of massive parallel processing. Thus, it would have been obvious to one of ordinary skill in the art to combine Juvinal and Chin to obtain the invention as specified in claim 1.

Regarding claims 2 and 12, Juvinall discloses that the data-dependent processor comprises a plurality of closely coupled Von Neuman processors, thus all of the processors are the same and thus meet the limitation.

The limitations of claim 11 have already been addressed above in the rejection of claim 1.

Regarding claims 3-5 and 13-15, Chin discloses a massively parallel processing system that can be used to operate as an SIMD, MIMD, MSIMD, etc. The processors form a cluster for the execution of systolic-array-types (as stated at least in the abstract).

Regarding claims 6 and 16, Juvinall discloses that the systolic array processor includes an array of N by n processors that receive pixel data in sequence, thus in time (col. 4 lines 24-44).

Regarding claim 7, Juvinall discloses a camera 48 connected to the system. Regarding claims 8-9 and 17-18, Juvinall discloses a camera that is separate from the systolic arrays thus meeting the limitations. It is well known to realign data in a camera.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Strege whose telephone number is (571) 272-

7457. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JS

BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600